#4/13 KW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

2767 5-27-99

RE: Application of Rolf Carlson

Serial No. 08/959,575

Filed: October 28, 1997

For: UNIVERSAL GAMING ENGINE

Group Art Unit: ~~2787~~

Examiner: Toby

Docket No.: 1505/5(a)



Assistant Commissioner for Patents
Washington, D.C. 20231

**PRELIMINARY AMENDMENT**

Dear Sir:

Claims 17-22 are pending in this divisional application. Applicant has made minor typographical corrections to the specification. Also, Applicant has amended Claims 17-22 and added Claims 29-43. No new matter has been added to the application. Please make the following amendments to the above-identified patent application.

**IN THE SPECIFICATION:**

Page 1, line 2, after "BACKGROUND OF THE INVENTION", please add

~~1.~~ Related Applications.

This application is a divisional application of U.S. Application No. 08/358,242 filed December 19, 1994 that issued as U.S. Patent No. 5,707,286 on January 13, 1998.

Page 1, line 3, please delete "1. Field of the Invention." and substitute therefor --2. Field of the Invention. --.

Page 1, line 8, please delete "2. Statement of the Problem." and substitute therefor --3. Statement of the Problem. --

Page 3, line 23, please delete "In" and substitute therefor --It--

Page 3, line 29, please delete "an" and substitute therefor --An--

Page 4, line 24, please delete "if given" and substitute therefor --with --

Page 5, line 26, please delete "he" and substitute therefor --the--

Page 5, line 28, please delete "3. Solution to the Problem." and substitute therefor --4. Solution to the Problem. --

**IN THE CLAIMS:**

17. (Amended) A [uniform] random number generator comprising:

a controller;

at least one random number circuit connected to said controller, said at least one random number circuit providing a series of pseudo-random numbers to said controller, said series of pseudo-random numbers comprising a plurality of raw pseudo-random numbers wherein each of said plurality of raw pseudo-random numbers are stored by said controller [on an output]; and

[verification means coupled to receive the] a verifier connected to said controller, said verifier receiving said stored raw [series of] pseudo-random numbers from said controller, said verifier [the random number circuit for] verifying that [the received] each of said plurality of raw pseudo-random numbers is [are] statistically random, [the verification] said verifier supplying a series of statistically verified pseudo-random numbers [means having an output for supplying a series of verified pseudo-random numbers;

control means coupled to the verification means and the random number circuit, for activating the random number circuit and the verification means].

~~18. (Amended) The [uniform] random number generator of claim 17 further~~ comprising:

a buffer having an output, said buffer receiving said series statistically verified pseudo-random numbers, said buffer providing said received series of statistically

verified pseudo-random numbers to said output [means coupled to the verification means for storing numbers, the buffer means having an input for receiving the verified pseudo-random numbers from the verification means and an output for distributing the verified stored pseudo-random numbers].

19. (Amended) The [uniform] random number generator of claim 17 wherein [the] said random number circuit comprises an ANSI X9.17 circuit.

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20. (Amended) The [uniform] random number generator of claim 17 further comprising:

at least two random number circuits, each of [the] said at least two random number circuits having independent seed values and key values, [the] said at least two random number circuits providing at least two independent series of pseudo-random numbers to said controller; and

[the control means] said controller further comprises a coupling to each of [the] said at least two pseudo-random number circuits to receive said at least two independent series of pseudo random numbers [for controllably coupling one of the at least two series of pseudo-random numbers to the verification means].

21.(Amended) The [uniform] random number generator of claim 18 wherein [the] said buffer[ means] comprises a first in first out (FIFO) register.

22. (Amended) The [uniform] random number generator of claim 18 wherein [the] said buffer receives said series of statistically verified pseudo-random numbers at a first rate, said buffer supplying said series of statistically verified pseudo-random numbers to said output at a second rate, said first rate greater than said second rate, said buffer providing short-term bursts of said series of statistically verified pseudo-random numbers to said output during said short-term bursts said second rate is greater than said first rate [means has a storage capacity and output speed sufficient to

B2 cont provide bursts of the stored verified pseudo-random numbers at a rate greater than an output rate of the verification means].

29. (Added) The random number generator of claim 17 wherein said verifier verifies said plurality of raw pseudo-random numbers using at least a verification algorithm selected from the group consisting of a Runs Test, a Kolmorgorov-Smirnov (K-S) test, a Chi-square test and a serial test.

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30. (Added) The random number generator of claim 17 wherein said at least one random number circuit comprises at least one encryption circuit.

31. (Added) The random number generator of claim 30 wherein said at least one encryption circuit includes at least one data encryption standard (DES) circuit.

32. (Added) The random number generator of claim 30 wherein said at least one encryption circuit includes at least one international data encryption algorithm (IDEA) circuit.

Sub C2

33. (Added) A random number generator comprising:

a controller;

a random number generator connected to said controller, said random number generator providing a series of random numbers to said controller, said series of random numbers comprising a plurality of raw random numbers wherein each of said plurality of raw random numbers are stored by said controller; and

a verifier connected to said controller, said verifier receiving said stored raw random numbers from said controller, said verifier supplying a series of statistically verified random numbers.

34. (Added) The random number generator of claim 33 wherein said random numbers are pseudo-random numbers.

35. (Added) The random number generator of claim 34 wherein said random number generator is an ANSI X9.17 pseudo-random number generator.

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36. (Added) The random number generator of claim 33 further comprising:

a buffer having an output, said buffer receiving said series of statistically verified random numbers, said buffer providing said received series of statistically verified random numbers to said output.

37. (Added) The random number generator of claim 36 wherein the buffer comprises a first in first out (FIFO) register.

38. (Added) The random number generator of claim 36 wherein said buffer receives said series of statistically verified random numbers at a first rate, said buffer supplying said series of statistically verified random numbers to said output at a second rate, said first rate greater than said second rate, said buffer providing short-term bursts of said series statistically verified random numbers to said output during said short-term bursts said second rate is greater than said first rate.

39. (Added) The random number generator of claim 33 further comprising:

an encryption circuit connected to said random number generator, said encryption circuit encrypting said series of random numbers and supplying said encrypted random numbers to said controller.

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40. (Added) The random number generator of claim 33 further comprises:

a plurality of encryption standard (DES) circuits connected to said random number generator, said plurality of encryption circuits encrypting said series of pseudo-

random numbers and supplying said encrypted pseudo random-numbers to said controller.

41. (Added) The random number generator of claim 39 wherein said encryption circuit uses international data encryption algorithm (IDEA) encryption.

42. (Added) A random number generator comprising:

a controller;

at least one random number circuit connected to said controller, said at least one random number circuit providing a series of pseudo-random numbers to said controller, said series of pseudo-random numbers comprising a plurality of raw pseudo-random numbers wherein each of said plurality of raw pseudo-random numbers are stored by said controller;

a verifier connected to said controller, said verifier receiving said stored raw pseudo-random numbers from said controller, said verifier verifying that each of said plurality of raw pseudo-random numbers is statistically random, said verifier supplying a series of verified pseudo-random numbers;

a buffer having an output, said buffer receiving said series of statistically verified pseudo-random numbers, said buffer providing said series of statistically verified pseudo-random numbers to said output;

wherein said buffer receives said series of statistically verified pseudo-random numbers at a first rate, said buffer supplying said series statistically verified pseudo-random numbers to said output at a second rate, said first rate greater than said second rate, said buffer providing short-term bursts of said series of statistically verified pseudo-random numbers to said output during said short-term bursts said second rate is greater than said first rate.

43. (Added) A random number generation system comprising:

a verifier;

a random number generator connected to said verifier, said random number generator supplying a series of random numbers to said verifier, said series of random numbers comprising a plurality of raw random numbers,

said verifier verifying that each of said raw random numbers is statistically random, said verifier supplying a series of statistically verified random numbers.

## REMARKS

In the present application, Claims 17-22 are pending. Applicant has amended Claims 17-22 and added Claims 29-43. No new matter has been added. The claims amendments and the new claims find support in the specification at pages 14-21.

Specifically, Applicant presents a random number generator that comprises a controller (page 17, lines 27-28). The controller is connected to a random number generator which supplies a series of random numbers and the series of random numbers comprises a plurality of raw random numbers (page 17, lines 28-30). The controller further stores the raw random numbers (page 17, line 28). A verification circuit is integral with or may be connected to the controller and receives the raw random numbers (page 17 lines 30-33). The verifier verifies that each of the plurality of raw random numbers is statistically random. (page 18, lines 6-15). The verifier accesses one or more verification algorithms to verify that the raw random numbers are statistically random (page 17, lines11-26). The use of more than one verification algorithm ensures the statistically randomness of the numbers and overcomes a common problem where random number generators generate random numbers that are long-term random but experience short-term runs or trends (see page 18, lines 20-26). The statistically random numbers are stored in a buffer connected to the controller (page 19, lines 1-3). The buffer is capable of providing short bursts of statistically random numbers to an output at a higher rate than the rate at which the controller supplies the statistically random number to the buffer (page 19, lines 4-14).

Applicant further asserts that the present invention is new and novel over the applicable art and that the present invention should be allowed. If any other fees are required, please charge them to the Deposit Account No. 04-1414. Should the Examiner anticipate any action other than allowance of the case, the Examiner is invited to call the below-listed attorney to discuss the case.

Respectfully submitted,

DORR, CARSON, SLOAN & BIRNEY, P.C.

Date: April 28, 1999

By _____

John F. Thompson #43,953
3010 East 6th Avenue
Denver, Colorado 80206
(303) 333-3010

Attorney for Applicants

Please type a plus sign (+) inside this box → [+]

PTO/SB/21 (6-98)
Approved for use through 09/30/2000. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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# TRANSMITTAL FORM

*(to be used for all correspondence after initial filing)*

| | |
|---|---|
| **Application Number** | 08/959,575 |
| **Filing Date** | October 28, 1997 |
| **First Named Inventor** | Rolf Carlson |
| Group Art Unit | 2787 |
| Examiner Name | |
| Total Number of Pages in This Submission: 11 | Attorney Docket Number: 1505/5(a) |

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GROUP 2700

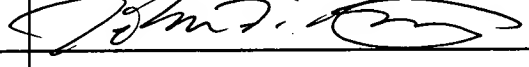
**ENCLOSURES** *(check all that apply)*

- [x] Fee Transmittal Form
  - [x] Fee Attached
- [x] Amendment / Response
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
  - [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Assignment Papers *(for an Application)*
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition Routing Slip (PTO/SB/69) and Accompanying Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Small Entity Statement
- [ ] Request for Refund
- [ ] After Allowance Communication to Group
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to Group *(Appeal Notice, Brief, Reply Brief)*
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Additional Enclosure(s) *(please identify below)*:

Fee Determination

Remarks

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

| | |
|---|---|
| Firm or Individual name | John F. Thompson, Esq. - Reg. No. 43,953<br>Dorr, Carson, Sloan & Birney, P.C. |
| Signature |  |
| Date | April 28, 1999 |

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# FEE TRANSMITTAL for FY 1999

*Patent fees are subject to annual revision.*
*Small Entity payments must be supported by a small entity statement, otherwise large entity fees must be paid. See Forms PTO/SB/09-12.*

**TOTAL AMOUNT OF PAYMENT** ($) 96

| Complete if Known | |
|---|---|
| Application Number | 08/959,575 |
| Filing Date | October 28, 1997 |
| First Named Inventor | Rolf Carlson |
| Examiner Name | |
| Group / Art Unit | 2787 |
| Attorney Docket No. | 1505/5(a) |

## METHOD OF PAYMENT (check one)

1. [X] The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit Account Number: 04-1414
Deposit Account Name: Dorr, Carson, Sloan & Birney, P.C.

[X] Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

2. [X] **Payment Enclosed:** [X] Check [ ] Money Order [ ] Other

## FEE CALCULATION

### 1. BASIC FILING FEE

| Large Entity Fee Code | Large Entity Fee ($) | Small Entity Fee Code | Small Entity Fee ($) | Fee Description | Fee Paid |
|---|---|---|---|---|---|
| 101 | 760 | 201 | 380 | Utility filing fee | |
| 106 | 310 | 206 | 155 | Design filing fee | |
| 107 | 480 | 207 | 240 | Plant filing fee | |
| 108 | 760 | 208 | 380 | Reissue filing fee | |
| 114 | 150 | 214 | 75 | Provisional filing fee | |

SUBTOTAL (1) ($)

### 2. EXTRA CLAIM FEES

| | | Extra Claims | | Fee from below | Fee Paid |
|---|---|---|---|---|---|
| Total Claims | | -20** = | 1 | X 18 | = 18 |
| Independent Claims | | - 3** = | 1 | X 78 | = 78 |
| Multiple Dependent | | | | | = |

***or number previously paid, if greater; For Reissues, see below*

| Large Entity Fee Code | Large Entity Fee ($) | Small Entity Fee Code | Small Entity Fee ($) | Fee Description |
|---|---|---|---|---|
| 103 | 18 | 203 | 9 | Claims in excess of 20 |
| 102 | 78 | 202 | 39 | Independent claims in excess of 3 |
| 104 | 260 | 204 | 130 | Multiple dependent claim, if not paid |
| 109 | 78 | 209 | 39 | ** Reissue independent claims over original patent |
| 110 | 18 | 210 | 9 | ** Reissue claims in excess of 20 and over original patent |

SUBTOTAL (2) ($) 96

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

| Large Entity Fee Code | Large Entity Fee ($) | Small Entity Fee Code | Small Entity Fee ($) | Fee Description | Fee Paid |
|---|---|---|---|---|---|
| 105 | 130 | 205 | 65 | Surcharge - late filing fee or oath | 99 |
| 127 | 50 | 227 | 25 | Surcharge - late provisional filing fee or cover sheet. | |
| 139 | 130 | 139 | 130 | Non-English specification | |
| 147 | 2,520 | 147 | 2,520 | For filing a request for reexamination | |
| 112 | 920* | 112 | 920* | Requesting publication of SIR prior to Examiner action | |
| 113 | 1,840* | 113 | 1,840* | Requesting publication of SIR after Examiner action | |
| 115 | 110 | 215 | 55 | Extension for reply within first month | |
| 116 | 380 | 216 | 190 | Extension for reply within second month | |
| 117 | 870 | 217 | 435 | Extension for reply within third month | |
| 118 | 1,360 | 218 | 680 | Extension for reply within fourth month | |
| 128 | 1,850 | 228 | 925 | Extension for reply within fifth month | |
| 119 | 300 | 219 | 150 | Notice of Appeal | |
| 120 | 300 | 220 | 150 | Filing a brief in support of an appeal | |
| 121 | 260 | 221 | 130 | Request for oral hearing | |
| 138 | 1,510 | 138 | 1,510 | Petition to institute a public use proceeding | |
| 140 | 110 | 240 | 55 | Petition to revive - unavoidable | |
| 141 | 1,210 | 241 | 605 | Petition to revive - unintentional | |
| 142 | 1,210 | 242 | 605 | Utility issue fee (or reissue) | |
| 143 | 430 | 243 | 215 | Design issue fee | |
| 144 | 580 | 244 | 290 | Plant issue fee | |
| 122 | 130 | 122 | 130 | Petitions to the Commissioner | |
| 123 | 50 | 123 | 50 | Petitions related to provisional applications | |
| 126 | 240 | 126 | 240 | Submission of Information Disclosure Stmt | |
| 581 | 40 | 581 | 40 | Recording each patent assignment per property (times number of properties) | |
| 146 | 760 | 246 | 380 | Filing a submission after final rejection (37 CFR 1.129(a)) | |
| 149 | 760 | 249 | 380 | For each additional invention to be examined (37 CFR 1.129(b)) | |

Other fee (specify) _____ 10.00 OP
Other fee (specify) _____ 78.00 OP

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($)

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## SUBMITTED BY

| | | | | | |
|---|---|---|---|---|---|
| Typed or Printed Name | John F. Thompson | | | Reg. Number | 43,953 |
| Signature | | Date | 4/28/99 | Deposit Account User ID | |

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01 FC:102 10.00 OP
02 FC:103 78.00 OP